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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/689,965

10/22/2003

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2061

7590
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05/15/2007

EXAMINER

CHORBAJI, MONZER R

ART UNIT

PAPER NUMBER

1744

MAIL DATE

DELIVERY MODE

05/15/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/689,965

Applicant(s)

MALAK, HENRYK

Examiner

MONZER R. CHORBAJI

Art Unit

1744

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 2 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 February 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7,9,10,16,17,19 and 20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7,9,10,16,17,19 and 20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

This final action is in response to the amendment received on 02/13/2007

Specification

1. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: In claim 1, line 3; Applicant refers to "an object". However, the disclosure makes no mention of what represents the object.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

3. Claims 1 and 17 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 1, lines 3-4, Applicant refers to an object, which is not defined in the disclosure and the examiner is unable to understand what does the object represent? For example, does the object represent bacteria or body organs? Additionally, Applicant states, "allowing an object containing the biological substance to interact with the composition"; however, the disclosure does not explain how this interaction occurs. Correction is requested.

In claim 17, line 2, Applicant states to perform the method of claim 1 at a specific location in the object. The disclosure does not provide examples of what represent

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possible specific locations in the object and one of ordinary skill in the art upon reading the disclosure would not understand what "specific" represents. Correction is requested.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-3, 5-7, 9-10, 16-17 and 19-20 are rejected under 35 U.S.C. 102(b) as being anticipated by Komatsu et al (U.S.P.N. 6,121,191).

Regarding claim 1, Komatsu discloses a method of plasmon (col.5, lines 62-64) bacterial management (col.6, lines 35-39) that includes the following: providing a composition (col.5, lines 63-64 and col.7, lines 60-61) that changes the properties of a biological substance (col.6, line 38) such that the composition includes a plasmon source (col.11, lines 61-63) and a plasmon excited nanoparticles (col.1, lines 12-13) and allowing an object (for example, a filter as mentioned in col.16, line 37) containing the biological substance (col.16, lines 47-48) to interact with the composition (the object, a filter, interacts with the composition by being a substrate supporting it and also being irradiated with UV light as mentioned in col.16, lines 45-51).

Regarding claims 2-3, 5-7, 9-10, 16-17 and 19-20, Komatsu teaches the following: biological substance is bacteria (col.16, lines 47-48), chemical agent is an inorganic molecule (col.11, line 14), nanoparticles are metals such as silver or platinum (col.6, lines 17-18) nanoparticles are uncoated, nanoparticles size is in the range of 1

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nm to 10 nm in the diameter dimension (col.6, lines 1-2), nanoparticles are colloid (col.14, lines 48-51), the method is utilized in anti-odor treatment (col.25, lines 8-11), the method is performed at a specific location (within the fibers of a filter as mentioned in col.16, line 37) in the object where the nanoparticles remains in the location for the object treatment (col.16, lines 45-50), the method is applied in an air conditioning and heating system (col.6, lines 35-36) and the plasmon source is electromagnetic (col.11, lines 61-62).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

8. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Komatsu et al (U.S.P.N. 6,121,191) as applied to claim 3 and further in view of Pedahzur (Water Science and Technology).

Komatsu does not specifically teach that hydrogen peroxide is an example of a chemical agent. Komatsu embeds fibers used in water cleaning devices with his disinfecting composition (col.6, lines 34-35) that include silver metal nanoparticles (col.6, line 18). Pedahzur teaches that hydrogen peroxide is a known water disinfectant (abstract) and its efficiency is enlarged when combined with silver ions where such a combination results in long lasting residual effect and low disinfection by-product formation (abstract). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further add hydrogen peroxide treatment step to Komatsu as taught by Pedahzur since the disinfection efficiency of hydrogen peroxide is improved upon combination with silver ions resulting in long lasting residual effect and low disinfection by-product formation (Pedahzur, abstract).

Remarks

9. The amendment to the specification submitted on 02/13/2007 has been accepted.

Response to Arguments

10. Applicant's arguments filed on 02/13/2007 have been fully considered but they are not persuasive.

On page 9 of the Response, Applicant's arguments are directed to Kasemo reference that is applied to the instant claims. Now, and in response to the newly amended claims, Komatsu reference is applied. The reference discloses a method of plasmon (col.5, lines 62-64) bacterial management (col.6, lines 35-39) that includes the following: providing a composition (col.5, lines 63-64 and col.7, lines 60-61) that

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changes the properties of a biological substance (col.6, line 38) such that the composition includes a plasmon source (col.11, lines 61-63) and a plasmon excited nanoparticles (col.1, lines 12-13) and allowing an object (for example, a filter as mentioned in col.16, line 37) containing the biological substance (col.16, lines 47-48) to interact with the composition (the object, a filter, interacts with the composition by being a substrate supporting it and also being irradiated with UV light as mentioned in col.16, lines 45-51).

The Pedahzur is combined with Komatsu's plasmon method of treating microorganisms in water systems where silver nanoparticles are a component of Komatsu's disinfecting composition to show that hydrogen peroxide is a known water disinfectant (abstract) and its efficiency is enlarged when combined with silver ions where such a combination results in long lasting residual effect and low disinfection by-product formation (abstract).

Conclusion

11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

12. A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the

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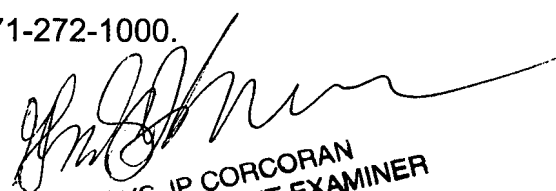
shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to MONZER R. CHORBAJI whose telephone number is (571) 272-1271. The examiner can normally be reached on M-F 9:00-5:30.

14. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, GLADYS J. CORCORAN can be reached on (571) 272-1214. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

15. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

MRC


GLADYS JP CORCORAN
SUPERVISORY PATENT EXAMINER